CZECHOSLOVAKIA/Organic Chemistry. Natural Compounds and Their Synthetic Analogs. G

Abs Jour: Ref Zhur-Khim., No 11, 1959, 38776.

KOH (20°, 12 hrs) to give 6.8 gms VIII, bp 166°/3 mm. The electrolysis of 3.4 gms VIII and 9 gms CH_3OCOCH_2-$CH(CH_3)CH_2COOH$ in 15 ml CH_3OH in the presence of CH_3ONa (from 0.1 gm Na) at 40 v and 0.9 amp with subsequent treatment and distillation in a column [sic] gives 4.2 gms IX, bp 134-136°/4 mm, $n^{20}D$ 1.4455, d_4^{20} 0.9752 together with 1.3 gm of the dimethyl ester of III, bp 163-164°/4 mm, $n^{20}D$ 1.4459, d_4^{20} 0.9887. -- L. Novotny.

Card : 6/6

G-55

G-3

COUNTRY : Czechoslovakia
CATEGORY : Organic Chemistry--Natural compounds and their synthetic analogs.
ABS. JOUR. : RZKhim., No. 16 1959, No. 57216

AUTHOR : Sykora, V., Herout, V., and Sorm, F.
INST. : Not given
TITLE : Terpene Chemistry. XCII. Absolute Configuration of Compounds in the Cadinene Series.

ORIG. PUB. : Chem Listy, 52, No 7, 1314-1319 (1958): Collection Czechoslov Chem Commun, 23, No 12, 2181-2187 (1958)

ABSTRACT : From a comparison of the rotational dispersion curves for 15-norcadinanone-10 (I), and 10-hydroxycadinanone-5 (II), prepared from γ-cadinol (cf. RZhKhim, No 3, 1959, 8595), with 9-methyl-trans-decalone-4, the absolute configuration of which is known, the authors have derived the absolute configuration for (-)-cadinanedihydrobromide expressed by formula III. This configuration is confirmed by the oxidation of β-cadinane (IV) by HNO_3 or by ozonation

CARD: 1/6

COUNTRY : Czechoslovakia G-3
CATEGORY :

ABS. JOUR. : RZKhim., No. 16 1959, No. 57216

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : of IV followed by oxidation with dil HNO_3 to D(+)-isopropylsuccinic acid (V). I does not isomerize when refluxed for 45 min with 10% NaOH in alcohol. When (-)-cadinanedihydrochloride is heated with CH_3COONa in CH_3COOH followed by chromatography on alkaline Al_2O_3 followed by fractionation in a column with 70 theoretical plates packed with Diksone [sic], IV is obtained, bp 124°/9 mm, $n^{20}D$ 1.5059, d_4^{20} 0.9239. 9.5 gms IV are added over 2 hrs to

CARD: 2/6

158

COUNTRY : Czechoslovakia G-3
CATEGORY :

ABS. JOUR. : RZKhim., No. 16 1959, No. 57216

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : 200 ml of boiling 65% HNO_3, the solution is refluxed for 30 min, and the usual treatment is applied; a mixture of acids (5.3 gms) is obtained which is chromatographed on a column packed with powdered cellulose. Petroleum ether, C_6H_6, a 9 : 1 mixture of C_6H_6-ether, a 36 : 4 : 1 mixture of C_6H_6-ether-$CHCl_3$, and acetone are used in the elution. The fractions obtained are subjected to paper chromatography; elution with ether yields 54 mg V, mp 86.5 and 88° (from

CARD: 3/6

ORG. TEX : Czechoslovakia

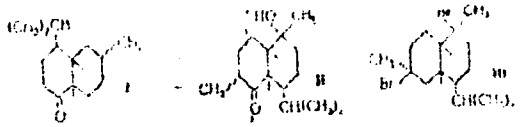
CATEGORY :

ABS. JOUR. : RZKhim., No. 16 1959, No. 57216

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : benzene), [α]^{20}D + 20.4° (c = 1.96: water). Further elution of the paper moistened with 1% H_2SO_4 yields an additional 112 mg of V. Better



CARD: 4/6

159

COUNTRY : Czechoslovakia
CATEGORY :

ABS. JOUR. : RZKhim., No. 16 1959, No. 57216

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : yields of V are obtained by the ozonation of 7.3 gms IV in 80 ml CH_3COOH and the decomposition of the ozonides at 100° with a mixture of 45 ml water and 2.2 ml 30% H_2O_2. The residue after the evaporation of the solution is oxidized (1 hr, 110-120°) with 50% HNO_3 and V_2O_5; after the usual treatment, 2.03 gms of the anhydride of V are obtained which on heating with water give V (yield 15%); the latter is purified by paper chromatography. The reaction dispersion

CARD: 5/6

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000618020002-

ABS. JOUR. : RZKhim., No. 16 1959, No. 57216

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : [rotational interaction?] curves for I and III and the IR spectrum of IV are given.

L. Novotny

CARD: 6/6

FIALA, O.; HEROUT, V.; KORNON, M.

Bone needle biopsy in the differential diagnosis of destructive processes. Rev. Czech.M. 6 no.4: 253-65 '60.

1. Orthopaedic Clinic, Medical Faculty, Charles University, Hradec Kralove. Director: Prof. J. Vavrda, M.D. Institute of Pathology, Medical Faculty, Charles University, Hradec Kralov. Director: Prof. A. Fingerland, M.D.
(BONE AND BONES pathol)
(BIOPSY)

AUTHOR : Romanuk, M.; Herout, V.; Sorm, F.

TITLE : On Substances Isolated from Plants. VII. Structure of Aplotaxene from Costus Ethereal Oil

PUB. : Chem. Listy, 1958, 52, No 10, 1935-1946; Collect. Czech. Chem. Commun., 1959, 24, No 6, 2013-2022

ABSTRACT : On the basis of infrared spectra, hydrogenation, oxidation, as well as oxidative [illegible] partial hydrogenation, aplotaxene (VII, isolated from the essential oil of Saussurea lappa Clarke plant, was ascribed the structure n-heptadecatetraene-1,8,11,14, which partly contradicts the older data of Semmler and Feldstein (Semmler, F. W., Feldstein, J., Ber., 1914, 47, 2687). By the hydrogenation of I over PtO_2 in

CARD: 1/3

G-40

COUNTRY :
CATEGORY :

ABS. JOUR. : RZKhim., No. 1 1960, No. 1399

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT cont'd : glacial CH_3COOH until cessation of H_2 absorption, octahydrophenanthrene (n-heptadec[illegible] [illegible], m.p. [illegible]$^\circ$, n^{22}_D 1.[illegible], d_4^{22} 0.7770 [illegible] [illegible] [illegible] [illegible] was measured with [illegible] [illegible] [illegible] cm), was obtained. The ozonization [illegible] carried in CH_3COOH at 0°, the product was boiled for 1 hour with water, distilled and, in the distillate, 2,4-dinitrophenylhydrazones of formaldehyde, acetaldehyde and propionaldehyde, [illegible]

CARD: 2/[illegible]

COUNTRY :
CATEGORY :

ABS. JOUR. : RZKhim., No. 1 1960, No. 1399

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : [illegible] by paper chromatography [illegible] Vasilenko (re [illegible] [illegible] nich), [illegible] [illegible] [illegible] after [illegible] [illegible] between other [illegible] current [illegible] between other [illegible] acid [illegible] uric [illegible] acid and chloric acid which, upon [illegible] up to 100°, gave CH_3COOH, [illegible] and [illegible] up to 100°, [illegible] CH_3COOH, [illegible] by paper chromatography or [illegible] the aid of a [illegible] test. By the hydrogenation of I in [illegible]

CARD: 3/5

G-49

COUNTRY :
CATEGORY :

ABS. JOUR. : RZKhim., No. 1 1960, No. 1399

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : alcohol over Pd/C with deactivated quinoline, following the absorption of 1 mole of H_2, a methylenecyclic dihydro-derivative, b.p. 150-160°/15 mm, was obtained, which was subjected to esterification in glacial CH_3COOH at 0°; the product was then boiled for 2 hours with water and in addition oxidised with $KMnO_4$. By extraction with ether and distillation, caproic acid (p-bromophenacyl ether, m.p. 70°) and

CARD: 4/5

: RZKhim., No. 1 1960, No. 1399

: caprylic acid were obtained; p-bromophenacyl ester, m.p. 65°. In the residue [illegible] were found by paper chromatography. A supposition is expressed as to the biogenesis of I from unsaturated C(18)-acid through its decarboxylation. Report VI, see RZhKhim.Bio., No 21, 1959, No 96377.-- J. Kovar

5/5

HEROUT, V.

CZECH/3-52-11-11/30

AUTHORS: Dolejš, L., Sorm, F., Herout, V. and

TITLE: On Terpenes (Communication) XCIV. Structure of Lactucine (XCIV. Struktura laktucinu)

PERIODICAL: Chemické Listy, 1958, Vol 52, Nr 11, pp 2094 - 2093 (Czechoslovakia)

ABSTRACT: Lactucine $C_{15}H_{16}O_5$ and its p-hydroxyphenylacetate lactucopicrin $C_{23}H_{22}O_7$ have long been known to be the bitter principles of certain members of the Compositae Cichorium intybus). The structure (e.g. Lactuca virosa, previously examined in detail by Späth of lactucine was previously 1950's. According to these and by Wessely in the early authors it is a sesquiterpene lactone, which yields on selenium dehydrogenation an uncharacterised azulene. The authors of the present paper state they are able to show that lactucine has a spiranolidine skeleton with an unsaturated lactone ring closed at position 6. On the basis of U.V. and I.R. spectra they formulate a tiene system for lactucine situated in the furanolidine skeleton. One of the hydroxyls of lactucine is a secondary one on C(8); the second is a primary one most likely situated on C(14). The authors give further evidence for structure for lactucine in addition to that given previously (Ref 5) and which appeared simultaneously with that of Barton and Shravanam (Ref 6). The authors also propose the absolute configuration of certain asymmetric centres. There are 17 references, 5 of which are Czech, + German, 1 Japanese and 7 English.

Card1/2

ASSOCIATION: Oddělení přírodních látek, Chemický ústav, Československá akademie věd, Praha (Division of Natural Products, Institute of Chemistry, Czechoslovakian Ac.Sc., Prague.)

SUBMITTED: June 10, 1956

Card 2/2

4 ЕРОЧТ, U.

[illegible] 3/30

AUTHORS: Sýkora, V., [illegible], [illegible] A. and Šorm, F.

TITLE: On Terpenes [illegible] XCVI. Steric Configuration of Acorone and [illegible] XCVI. Sterická stavba akoronu a [illegible]

PERIODICAL: Chemické Listy, 1958, Vol 52, Nr 11, pp 2102 - 2109 (Czechoslovakia)

ABSTRACT: The connection between acorone, iso acorone, neoacorone and the probable basic form of their molecules has been determined on the basis of optical rotation difference, dispersion rotation curves, dipole moments and the thermodynamic stability of the above named diketones and their derivatives. Evidence was given in previous reports (Refs 1,2) that acorone possesses structure I. Structure I represents 16 membered stereoisomeric substances. If we consider that the compounds differ only in the configuration of the asymmetric centres neighbouring on the carbonyl groups ($C_{(4)}$ and $C_{(7)}$), four stereoisomers are possible. Three of these are known and have already been described and their I.R. spectra are given in this paper together with their

Card1/3

stereoisomers

optical rotation difference and rotational dispersion curves. It is suggested that neoacorone has the same steric conformation in its cyclohexane ring as acorone (i.e. boat) whilst isoacorone has the other form (i.e. chair) though it is by no means definite. Other evidence is given to show that the steric configuration of the isopropyl group in acorone is the opposite to that in neoacorone whilst it is quite likely that isoacorone has the same isopropyl group configuration as acorone itself. Since the methylene group of the six membered ring of acorone, neighbouring on the carbonyl group, is markedly subject to steric hindrance it is probable that either the methyl or the isopropyl group of the five-membered ring of acorone is situated on the same side of the six-membered ring on which the carbonyl group is to be found. Other physical data such as refractive index, dipole moments and dielectric constants together with the course of the alkaline isomerism of the isomers is given.

Card2/3

There are 3 figures, [illegible] tables and 12 references, 3 of which are Czech, 8 English and 1 French

ASSOCIATION: Oddělení přírodních látek, Chemický ústav, Československé akademie věd, Praha (Division of Natural Products, Institute of Chemistry, Czechoslovakian A.S., Prague)

SUBMITTED: April 30, 1958

Card 3/3

Herout, V.

Gas chromatography. Tr. from the Czech. p.354

MAGYAR KEMIKUSOK LAPJA. (Magyar Kemikusok Egyesulete)
Budapest, Hungary. Vol.14, no.9, September 1959

Monthly List of East European Accessions (EEAI) LC, Vol.8, no.11
November 1959
Uncl.

HEROUT, V.; SORM, F.; SUCHY, M.

"Terpenes." XCVIII. Proof of structure of arctiopicrin with a note on its stereochemistry. In English. p. 1542.

COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS, Praha, Czech., Vol 24, No. 5, May 1959

Monthly List of East European Accessions (EEAI), LC, Vol 8, No. 6, Sept. 59
Unclassified

HOLUB,M.; HEROUT,V.; SORM,F.

On plant substances. VIII. Analysis of substances extracted from the roots of a Laserpitium latifolium L. IX. Identification of 3,4-methylenedioxy-5-methoxypropiophenone in the roots of Laserpitium latifolium L. Coll Cz chem 25 no.12:3926-3937 '59. (EEAI 9:6)

1. Abteilung fur Naturstoffe, Chemisches Institut Tschechoslovakische Akademie der Wissenschaften, Prag.
(Laserpitium latifolium) (Propiophenone)
(Methylene group) (Methoxy group)

HOLUB, M.; HEROUT, V.; HORAK, M.; SORM, F.

Terpens. CIV. The constitution of betulenols from oil from the buds of white birch. (Betula alba L.) In English. Coll.Cz.Chem. 24 no.11: 3730-3738 N '59. (MRAI 9:5)

1. Department of Natural Products, Institute of Chemistry, Czechoslovak Academy of Science, Prague.
(Terpenes) (Betulinol) (Birch)

VRKOC,J.; HEROUT,V.; SORM,F.

On plant substances. X. Isolation of crystalline parts of the evelasting sand Helichrysum arenarium MCH. Coll Cz chem 25 no. 12:3938-3954 '59. (EEAI 9:6)

1. Abteilung fur Naturstoffe, Chemisches Institut, Tschechoslovakische Akademie der Wissenschaften, Prag.
(Helichrysum arenarium)

Herout, V.

Identity of jatamansone and valeranone. J. Klepinský, V. Herout, and F. Šorm (Czechoslovak Acad. Sci., Prague). *Tetrahedron Letters* 1960, No. 3, 9–12; cf. *CA* 53, 3386c.—Comparison of phys. consts. of derivs. and of degradation products proved the identity of so-called jatamansone (I) (Govindachari, *et al.*, *CA* 54, 4657*f*) and valeranone (II) (Stoll, *et al.*, *CA* 52, 4559*e*). Redn. of II with $LiAlH_4$ gave valeranol, $C_{15}H_{28}O$, d_{20} 1.0046, n_D^{20} 1.5005, $[\alpha]_D^{20}$ 51.4° ($CHCl_3$), dehydrated with *o*-$C_6H_4(CO)_2O$ at 270–80° to valerene, $C_{15}H_{24}$, d_{20} 0.9045, $[\alpha]_D^{20}$ 96.07°, hydrogenated with prereduced PtO_2 to valerane, $C_{15}H_{32}$, d_{20} 0.8965, n_D^{20} 1.4830, also obtained by treatment of II ethylenethioketal with Raney Ni in dioxane. The phys. consts. of II, d_{20} 0.9712, n_D^{20} 1.4944 $[\alpha]_D^{20}$ −43.0°, m.ps. of semicarbazone, 205–7°, oxime, 113–14°, and 2,4-dinitrophenylhydrazone, 99–100°, were very similar to the corresponding values for I. Ozonization of II monobenzylidene deriv., m. 101–2°, and cyclization of the dicarboxylic acid, $C_{15}H_{26}O_4$ (III), m. 236–7°, with $Ba(OH)_2$ gave the cyclic norvaleranone, $C_{14}H_{24}O$, ν 1735 $cm.^{-1}$ (semicarbazone m. 238–40°), converted to a liquid monobenzylidene deriv. and ozonized to norvaleranic acid (IV), $C_{14}H_{26}O_4$, m. 143°, dehydrated by pyrolysis or on treatment with Ac_2O to the cryst. anhydride, $C_{14}H_{24}O_3$ (V), m. 77–8°, brominated to a cryst. bromo anhydride (VI), m. 146–8°. Quant. bromination showed that a methylene group and a quaternary C atom were adjacent to the CO group in II. Dehydrogenation of valeranol with S at 180° 4 hrs. or Se at 280–300° 1 hr. or of valerene 1.5 hrs. with S at 180° or 6 hrs. at 200–50° or 30 min. with iodine at 280° gave no detectable amt. of an aromatic deriv. or of azulene. Only 2 hrs. dehydrogenation of valeranol with 50% Pd–C at 320–40° led to a mixt. of azulenic hydrocarbons. The degradation of I gave products, m. 233–4°, 143°, 85–6°, and 143°, corresponding to III, IV, V, and VI. A provisional formulation with a partial structure was suggested.

C. R. Addinall

VONASEK, F.; HEROUT, V.; SORM, F.

Terpenes. CVII. The composition of essential oil from false cubebs and the structure of cubeb camphor. Coll Cz chem 25 no.3:919-926 Mr '60. (EEAI 9:12)

1. Department of Natural Products, Institute of Chemistry, Czechoslovak Academy of Science, Prague (for Herout and Sorm).
2. Aroma, Prague 2 (for Vonasek)
(Pepper) (Terpenes)

NOVOTNY, L.; HEROUT, V.; SORM, F.

On terpenes. Part 109: A contribution to the structure of absinthin and anabsinthin. Coll Cz Chem 25 no.5:1492-1499 My '60.

1. Department of Natural Products, Institute of Chemistry, Czechoslovak Academy of Sciences, Prague.

NOVOTNY, L.; HEROUT, V.; SORM, F.

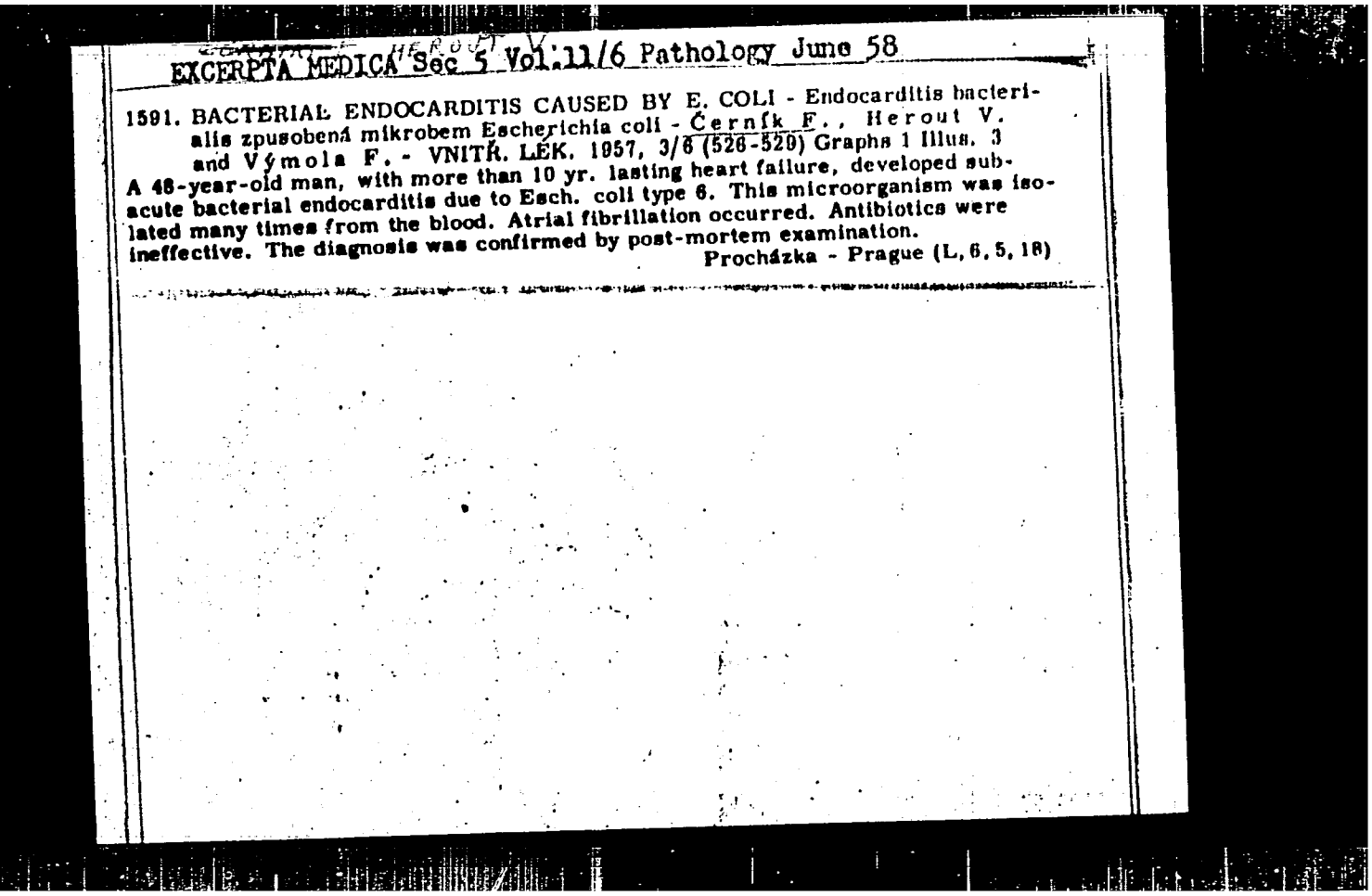
On terpenes. Part 110: A contribution to stereochemistry of absinthin and artabsin. Coll Cz Chem 25 no.5:1500-1505 My '60.

1. Department of Natural products, Institute of Chemistry, Czechoslovak Academy of Sciences, Prague.

HEROUT, Vl.; VORTEL, Vl.

Pathology of arteriography. Cas. lek. cesk. 99 no.25:761-767 17 Je '60.

1. Patologickoanatomicky ustav lekarske fakulty KU v Hradci Kralove, prednosta prof. Dr. Sc. MUDr. A. Fingerland.
(ANGIOGRAPHY compl.)



EXCERPTA MEDICA Sec 5 Vol.11/6 Pathology June 58

1591. BACTERIAL ENDOCARDITIS CAUSED BY E. COLI - Endocarditis bacterialis zpusobená mikrobem Escherichia coli - Černík F., Herout V. and Výmola F. - VNITŘ. LÉK. 1957, 3/8 (526-529) Graphs 1 Illus. 3

A 46-year-old man, with more than 10 yr. lasting heart failure, developed subacute bacterial endocarditis due to Esch. coli type 6. This microorganism was isolated many times from the blood. Atrial fibrillation occurred. Antibiotics were ineffective. The diagnosis was confirmed by post-mortem examination.

Procházka - Prague (L, 6, 5, 18)

HEROUT, V.

HAVA, O., Dr.; HEROUT, V., Dr.; [illegible], L., Dr.

Late metastases of sarcoma of hilus of kidneys to the lungs 16 years after nephrectomy. Rozhl. chir. 36 no.5:297-299 May 57.

1. Chirurgicka klinika a patholo. anatom. ustav VLA Jev?, Hradec Kralove.

(KIDNEY NEOPLASMS, compl.
sarcoma of hilus metastazing to lungs 16 years after nephrectomy (Cz))
(LUNG NEOPLASMS,
metastatic from sarcoma of kidney hilus 16 years after nephrectomy (Cz))
(NEPHRECTOMY, compl.
metastasis of sarcoma of kidney hilus to lungs 16 years after nephrectomy (Cz))

VLASTIMIL [illegible]

Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs E-3

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11823

Author : Kovacs Odon, Herout Vlastimil, Horak Milan, Sorm Frantisek
Title : On Terpenes. LXVII. Hydrogenation Products of Santonin and Alantolactone

Orig Pub : O terpenech. LXVII. Hydrogenacni produkty santoninu a alantolaktonu. Chem listy, 1955, 49, No 12, 1856-1869 (Czech); Sb. chekhosl. khim. rabot, 1956, 21, No 1, 225-239 (English)

Abstract : On hydrogenation of santonin (I) under different conditions, are formed three isomers of 3-ketosantonolide-5,12 (IIa, b and c), and on further hydrogenation there are obtained the corresponding 3-hydroxysantanolides-5,12 (IIIa, b, c). On reduction according to Clemensen, IIa and IIc give santonolide-5,12 (IVa), while IIb is converted to santonolide-5,12 [sic] (IVb). On interaction of IIa, b and c with ethylenedithiol (V) there are obtained ethylene thioketals, which on desulfurization with skeleton Ni form, respectively, IVa, b and c. IIc is readily isomerized to IIa. $LiAlH_4$ reduces IVa to santandiol-5,12 (VI), and alantanolide-5,12 (VII) to alantandiol-5,12 (VIII). Presented are the

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Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs E-3

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11823

infrared spectra of IVa, b and c, VII, IIa, b and c, IIIc, VI, VIII, 5,12-oxidosantan (IX) and alanten-Δ (?)-ol-12 (X). On hydrogenation of 0.1 mole I in 200 ml CH_3OH with $Pd/BaCO_3$ IIa is obtained, yield 74%, MP 158°, $[\alpha]^{18}D$ +30° ±1° (c 5.0) (all $[\alpha]D$ determined in chloroform); mother liquors of IIa are evaporated, residue dissolved in aqueous NaOH, after acidification ether is used to extract 3-keto-5-hydroxy-santanic acid (XI), yield 10.8%, MP 190-192° (from 50% CH_3OH), $[\alpha]^{20}D$ +20.7° ± 1° (c 7.45). Solution of 2 g XI and 0.5 g p-toluene sulfonic acid (XII) in 50 ml CH_3COOH held for 5 hours, diluted with water and extracted with ether to recover IIb, yield 89%, MP 103-105° (from 70% CH_3OH), $[\alpha]^{21}D$ + 11.3° ± 1° (c 3.88). By hydrogenation of IIb in glacial CH_3COOH with PtO_2 is obtained IIIb. MP 213-215° (from CH_3OH), $[\alpha]^{20}D$ -8.5° ± 1° (c 4). 4 g I are hydrogenated in CH_3OH with PtO_2 (120 atm, 20°), to get IIIc, yield 44%, MP 135° (from 50% CH_3OH), $[\alpha]^{20}D$ +42.7° ± 1° (c 3.97). Mixture 0.66 mole CrO_3, 0.1 ml water, 1 mole IIIc and 6 ml CH_3COOH left standing 20 hours, diluted with water (6 ml) and several drops alcohol, evaporated, and ether extraction

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Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11823

gives IIc, MP 145-146°, $[\alpha]^{20}D$ + 77.5 ± 2° (c 5.12). 0.01 mole IIa reduced according to Clemenensen (8 g Zn; 21 ml HCl; 1:2, boiled 12 hours), ether extraction gives IVa, yield 93%, MP 154° (from 90% alcohol), $[\alpha]^{20}D$ + 26.8 ± 1° (c 4.45). In the same manner from IIb is obtained IVb, yield 70%, MP 86-87° (from alcohol), $[\alpha]^{20}D$ -27.9° ± 2° (c 3.8). 100 mg IIc boiled 12 hours with 4 ml HCl (1:2), to get 65 mg IIa. Mixture of 0.01 mole IIa, 50 ml glacial CH_3COOH, 0.01 mole V and 0.96 g XII, held 3 hours at 20°, poured on ice, to get ethylene thioketal IIa, yield 99%, MP 195-196° (from ethyl acetate), $[\alpha]^{20}D$ + 44.7° ± 1 (c 4.95), which (0.005 mole) on boiling for 8 hours in 120 ml dioxane with 15 ml skeleton Ni I gives IVa with yield 98%. Analogously from IIb is prepared ethylene thioketal, yield 81%, MP 122-123° (from CH_3OH), $[\alpha]^{20}D$ -11.08° ± 1° (c 6.32), and from it IVb, yield 95%. Under the same conditions IIc is converted over the ethylene thioketal (yield 95%, MP 166-167° (from ethyl acetate), $[\alpha]^{20}D$ + 37.9° ± 1° (c 3.95)) into IVc, MP 137-139° (following crystallization from alcohol and di-iso-propyl ether, and sublimation (12 mm,

Card 3/5

Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11823

110°)), $[\alpha]^{20}D$ + 92.2 ± 2° (c 3.73). Mixture of 0.1 mole $LiAlH_4$, 0.05 mole IVa and 600 ml ether is stirred 2 hours, decomposed with 6 ml water and 200 ml 25% H_2SO_4, and VI is extracted with ether, yield 98%, MP 154-155° (from benzene), $[\alpha]^{20}D$ 25.3° ± 1° (c 4.12 in chloroform-CH_3OH, 1:1). 2 mole VI dissolved at 0° in 5 ml $SOCl_2$, after 1.5 hour $SOCl_2$ driven off, following chromatography on Al_2O_3 (petroleum ether) there are obtained 180 mg cyclic sulfite of VI, MP 75-76° (from alcohol), $[\alpha]^{20}D$ -253° ± 2° (c 2.84), which is saponified in aqueous-alcoholic NaOH to get VI. Boiling for 30 minutes of 2.5 mmole VI with 0.1 g XII in 12 ml C_6H_6 gives IX, yield 84%, BP 132-133°/8 mm, $n^{20}D$ 1.4972, d_4^{20} 0.9788, $[\alpha]^{20}D$ -39.54°. On steam distilling 3 kg of Inula Helenium roots, crystallizing the distillate from 70% alcohol and hydrogenating the product at 45° with PtO_2, in ethyl acetate, there are obtained 16.3 g of VII, MP 147-147.5° (from alcohol), $[\alpha]^{18}D$ + 14.6 ± 1° (c 1.92). On rediction of VII with $LiAlH_4$ VIII is obtained, yield 93%, MP 111-112° (from benzene-petroleum ether, 1:3), $[\alpha]^{20}D$ -6.2 ± 1° (c 4.55). VIII is converted to cyclic sulfite (like VI) yield 47%, MP

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E-3

Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11823

114-116° (from alcohol) $[\alpha]_D^{20}$ - 52.4° ± 2° (c 3.62). By dehydration under conditions used for IX, there is obtained from VIII the X, yield 88%, BP 133-135°/8 mm, n_D^{20} 1.5078, d_4^{20} 0.9879, $[\alpha]_D^{20}$ - 32.7° ± 2°.

Card 5/5

VLASTIMIL, HEROUT

E-3

Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11824

Author : Sychy Milos, Herout Vlastimil, Sorm Frantisek
Title : On Terpenes. LXVIII. Formation of Two Tetralkyl Azulenes on Treatment of Wormwood.

Orig Pub : O terpenech. LXVIII. Vznik dvou tetraalkylazulenu pri zpracovani pelynku praveho. Chem. listy, 1955, 49, No 12, 1870-1878 (Czech); Sb. chekhosl. khim. rabot, 1956, 21, No 2, 477-486 (English; Russian summaries)

Abstract : Technical mixture of azulenes, that is obtained on treatment of wormwood with alkali, was separated, by countercurrent extraction with petroleum ether and 52.2% solution of H_3PO_4, yielding two new azulenes: $C_{16}H_{20}$ (I), recovered from the petroleum ether, and $C_{15}H_{18}$ (II), isolated from the phosphoric acid fractions. On oxidation of I and II with $KMnO_4$, were obtained acetic and propionic acids. It is shown that by heating (24 hours) of wormwood extracts with 10% solution of NaOH there is obtained hamazulene, while heating them in the presence of wormwood stems yields I and II. II and I are formed on alkaline alkylation

Card 1/3

Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11824

of hydroxy-guaiadienolide (III) and absinthin (IV), respectively, with HCHO and CH_3CHO. On hydrogenation of I and II in CH_3COOH with PtO_2, dehydro-derivatives are formed. On this basis the authors atttribute to I the structure 1,4-dimethyl-2,7 or 6,7-diethylazulene, and to II that of 1,2,4- or 1,4,6-trimethyl-7-ethylazulene. For comparison were synthesized 1,4-dimethyl-7-sec-butylazulene (V) and 1,4-dimethyl-3,7-diethylazulene (VI). From 0.7 g technical mixture of I and II were isolated 0.254 g I, BP 173°/9 mm; trinitrobenzolate (TNB), MP 133° (from alcohol), and 0.16 g II, BP 160°/11 mm; TNB, MP 150° (from alcohol). Mixture of 50 mg III with 20 mg 30% HCHO and 100 ml 10% NaOH is heated 20 hours at 100°, after acidification the azulene is removed by steam distillation, and from it II is isolated with petroleum ether over Al_2O_3. Mixture of sec-C_4H_9Li (from 27 g sec-C_4H_9Cl, 2.2 g Li and 50 ml petroleum ether) and a solution of 2.2 g 2,8-dimethyl-(0,3,5)-bicyclo-decanone-5 in 30 ml ether, is boiled 6 hours, decomposed with water and dilute H_2SO_4, and from the ether extract is isolated 2,8-dimethyl-5-sec-butyl-(0,3,5)-bicyclodecanol-5 (VII), yield 39%, BP 157°/9 mm.

Card 2/3

Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11824

On heating 1 g VII with 1.5 g $KHSO_4$ (180°, 20 minutes) is obtained 2,8-dimethyl-5-sec-butyl-(0,3,5)-bicyclodecene (VIII), d_4^{20} 0.8813. Mixture of 0.6 g VIII and 0.35 g S is heated 15 minutes at 180°, the product is subjected to chromatography on Al_2O_3, and petroleum ether is used to eluate V, yield 11%; TNB, MP 126° (from alcohol). Mixture of 0.4 g hamazulene, 50 ml CH_2Cl_2, 8.2 ml $(CH_3CO)_2O$ and 1.5 ml BF_3 etherate, allowed to stand for 48 hours; CH_2Cl_2 extract washed with water and after removal of solvent subjected to chromatography on Al_2O_3; benzene is used to eluate 0.25 g 3-acetyl-hamazulene (IX); TNB, MP 123° (from alcohol). Mixture of 0.22 g IX, 30 ml ether and 0.15 g $LiAlH_4$, after standing for 24 hours, is decomposed with 100 ml water, and the ether extract, after removal of the ether, is subjected to chromatography on Al_2O_3; petroleum ether is used to eluate VI; TNB, MP 148° (from alcohol). Presented are ultraviolet spectra of I, II, V and VI, infrared spectra of I, II and their decahydro-derivatives, and of V, as well as the visible spectra of I, II and V.

Card 3/3

VLASTIMIL HEROUT

E-3

Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11825

Author : Romanuk Miroslav, Herout Vlastimil, Sorm Frantisek
Title : On Terpenes. LXIX. Structure of Dehydrokostuslactone.

Orig Pub : O terpenech. LXIX. Konstituce dehudrokostuslaktonu. Chem. listy, 1955, 49, No 12, 1879-1885 (Czech); Sb chekhosl. khim. rabot, 1956, 21, No 4, 894-901 (English; Russian summaries)

Abstract : Dehydrokostuslactone (I) (from Saussurea lappa Clarke) yields on hydrogenation a hexahydro-derivative (II), which was identified, by its infrared spectrum, as guaianolide (see RZhKhim, 1954, 27127). On dehydrogenation of I gives hamazulene (III), while dehydrogenation of II yields a mixture of S-guaiazulene (IV), Se-guaiazulene (V), III and 2,4-dimethyl-7-ethylazulene (VI). Ether solution of kostus oil was washed with bicarbonate, saponified by boiling with NaOH, solution of the salts washed with ether, and by acidification reconverted into lactone, which was washed free from phenols with cold alkali: thus was obtained I, BP 140-143°/0.5 mm, MP 61°, $[\alpha]^{20}D$ - 12.9°. On hydrogenation of I

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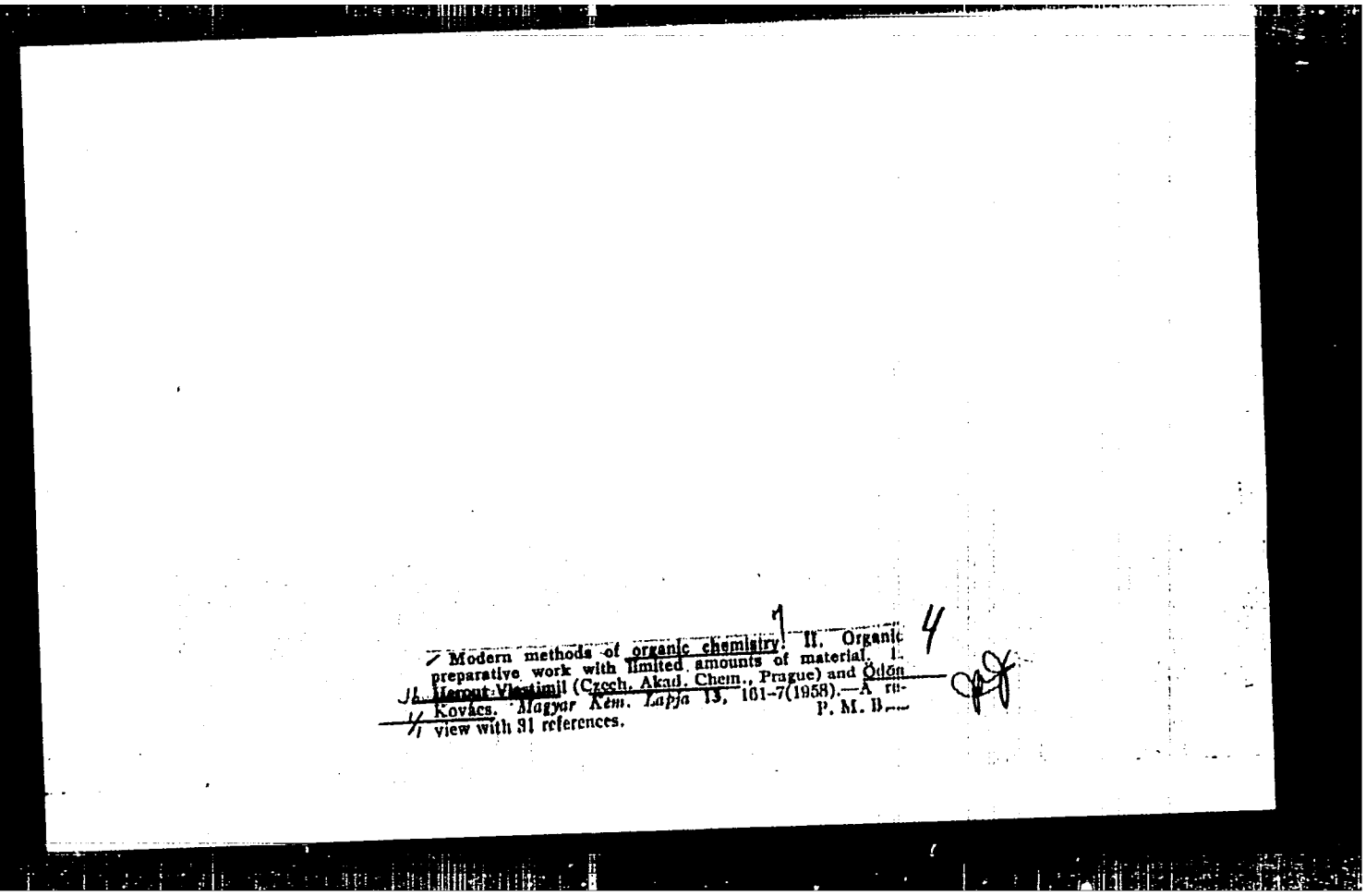
Czechoslovakia/ Organic Chemistry - Naturally occuring substances and their synthetic analogs E-3

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11825

with PtO_2 in glacial CH_3COOH was obtained II, BP 135-137°/0.4 mm, $n^{20}D$ 1.5076, d_4^{20} 1.0545, $[\alpha]^{20}D$ + 46.5°. 11.4 g II and 11.6 g Se heated to 320-335° and from the products was recovered, by chromatography on Al_2O_3 and extraction with 79% solution of H_3PO_4, a mixture of azulenes which, by means of paper chromatography (impregnated with paraffin oil and washed with 48% H_3PO_4), was separated into IV, V, III, trinitrobenzolate MP 130°, and VI, trinitrobenzolate MP 112°. Presented are infrared spectra of I, II, VI, visible and ultraviolet spectra of VI.

Card 2/2



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Second International Congress on Ethereal Oils in Prague. Vestnik CSAV 68 no.5:676-677 '59.

MOTL, O.; HEROUT, V.; SORM, F.

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1. Department of Natural Products, Institute of Chemistry, Czechoslovak Academy of Science, Prague.

(Terpenes) (Juniper)

ROMANUK, M.; HEROUT, V.

Terpenes. CXIV. On stereoisomeric vetivanes and sesquiterpenic hydrocarbons of vetiver oil. Coll Cz chem 25 no.10:2540-2551 O '60. (EEAI 10:9)

1. Department of Natural Products Institute of Chemistry, Czechoslovak Academy of Science, Prague.

(Terpenes) (Vetiver oil) (Vetivane)
(Hydrocarbons) (Sesquiterpenes)

CEKAN, Z.; PROCHAZKA, V.; HEROUT, V.; SORM, F.

Terpenes. CXV. Isolation of globicin, a guianolide from Matricaria globifera (Thunb.) Druce. Coll Cz chem 25 no.10:2553-2558 O '60. (EEAI 10:9)

1. Research Institute for Natural Drugs, Prague (for Cekan and Prochazka) 2. Department of Natural Products, Institute of Chemistry, Czechoslovak Academy of Science, Prague. (for Herout and Sorm)

(Terpenes) (Globicin) (Matricaria globifera)

LUKES, V.; HEROUT, V.

Apparatus for preparative gas-liquid chromatography. Coll Cz Chem 25 no.11:2770-2776 N '60. (EEAI 10:6)

1. Institut fur organische Chemie und Biochemie, Tschechoslowakische Akademie der Wissenschaften, Prag.
(Chromatography)

SUCHY, M.; HERCOUT, V.; SORM, F.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Science, Prague.
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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Science, Prague.

(Carrots) (Carotol)

SOUCEK, M.; HEROUT, V.; SORM, F.

Terpenes. CXVIII. Constitution of parthenolide. Coll Cz Chem 26 no.3:803-810 Mr '61. (EEAI 10:9)

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Science, Prague.

(Chrysantemum parthenium) (Terpenes)

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Science, Prague.

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(Sesquiterpenes) (Palustrol)

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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1. Department of Natural products, Institute of Chemistry, Czechoslovak Academy of Sciences, Prague.

HOCHMANNOVA, J.; HEROUT, V.; SORM, F.

On terpenes. Part 127: Isolation and structure of sesquiterpenic lactones from common yarrow (Achillea millefolium L.). Coll Cz Chem 26 no.7:1826-1831 Jl '61.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

SURNAME, Given Names

Country: Czechoslovakia

Academic Degrees: [not given]

Affiliation: Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague

Source: Prague, Collection of Czechoslovak Chemical Communications, Vol 26, No 10, October 1961, pp 2551-2556

Data: "On Terpenes. CXXX. Isolation of Digeranyl and Isodigeranyl from Bergamot Oil."

Authors:

SOUCEK, M
HEROUT, V
SORM, F

HEROUT, V.

SURNAME, Given Names

Country: Czechoslovakia

Academic Degrees: [not given]

Affiliation: Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague

Source: Prague, Collection of Czechoslovak Chemical Communications, Vol 26, No 10, October 1961, pp 2612-2623.

Data: "On Terpenes. CXXXI. Isolation and Structure of Costunolide, Balchanolide, Isobalchanolide and Hydroxybalchanolide, Sequiterpinic Lactones of Germacrane Type from Artemisia balchanorum H Krasch."

Authors:

HEROUT, V
SUCHY, M
SORM, F

HEROUT, V.

SURNAME, Given Names

(1)

Country: Czechoslovakia

Academic Degrees: [not given]

Affiliation: Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague

Source: Prague, Collection of Czechoslovak Chemical Communications, Vol 26, No 11, November 1961, pp 2916-2920

Data: "On Plant Substances. XII. Neutral Substances From Telekia speciosa (Schreb) Baumg."

Authors:

BENESOVA, V
HEROUT, V

VRKOC, J.; HEROUT, V.; SORM, F.

On terpenes. Part 133: Structure of acorenone, a sesquiterpenic ketone form sweet-flag oil (Acorus calamus L.) Coll Cz Chem 26 no.12:3183-3185 D '61.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Science, Prague.

FIALA, Oldrich; HEROUT, Vladimir; KLEN, Rudolf.

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1. Ortopedicka klinika lekarske fakulty University Karlovy v Hradci Kralove, prednosta prof. MUDr. Jaroslav Vavrda Ustav pathologicke anatomie v Hradci Kralove, prednosta prof. MUDr. Antonin Fingerland, Dr. Sc. Tkanova ustredna fakultni nemocnice v Hradci Kralove, prednosta MUDr. Rudolf Klen.
(JOINTS surg) (CARTILAGE transpl)

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KŘEPINSKÝ, J; ROMAŇUK, M; HEROUT, V; ŠORM, F.

Czechoslovakia

Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences -- Prague - (for all)

Prague, Collection of Czechoslovak Chemical Communications, No 11, 1962, pp 2638-2652

"On Terpenes. CXLII. Structure of the Sesquiterpenic Ketone Valeranone."

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Czechoslovakia

Institute of Organic Chemistry, and Biochemistry, Czechoslovak Academy of Sciences -- Prague - (for all)

Prague, Collection of Czechoslovak Chemical Communications, No 11, 1962, pp 2654-2660

"On Terpenes. CXLV. Constitution of Eupatoriopicrin, a Germacranolide from Eupatorium cannabinum L."

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague and Westfield College, University of London, England.

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Plant substances. Part 16: The constituents of coltsfoot rhizomes (Petasites officialis Moench). Coll Cz Chem 27 no.6:1393-1399 Je '62.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

NOVOTNY, L.; HEROUT, V.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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Coll Cz Chem 27 no.6:1510-1512 Je '62.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

SUCHY, M.; HEROUT, V.; SORM, F.

On terpenes. Part 141: Absolute configuration of cnicin and scabiolide. Coll Cz chem 27 no.10:2398-2403 O '62.

1. Institut of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

KREPINSKY, J.; HEROUT, V.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

HOVOTNY, L.; HEROUT, V.

Plant substances. Part 19: The constituents of Petasites spurius rhizomes. Coll Cz chem 27 no.10:2462-2464 O '62.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

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HOLUB, M.; HEROUT, V.

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HEROUT, Vlastimil

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1. Clen korespondent Ceskoslovenske akademie ved.

HEROUT, V

CZECHOSLOVAKIA

SUCHY, M; HEROUT, V; SORM, F.

Institute of Organic Chemistry and Biochemistry of the Czechoslovak Academy of Sciences, Prague (for all)

Prague, Collection of Czechoslovak Chemical Communications, No 7, 1963, pp1715-1718

"On Terpenes. CLIV. Lactones of the Germacranolide Group and Their Stereochemical Relationship."

CZECHOSLOVAKIA

SUCHY, M; HEROUT, V; SORM, F.

Institute of Organic Chemistry and Biochemistry of the Czechoslovak Academy of Sciences, Prague (for all)

Prague, Collection of Czechoslovak Chemical Communications, Vol 8, 1963, pp 2257-2260

"On Terpenes. CLV. Structure of Damsine, a Sesquiterpenic Lactone from Ambrosia maritima L."

HEROUT, V.

CZECHOSLOVAKIA

KREPINSKY, J; ROMANUK, M; HEROUT, V; SORM, F.

Institute of Organic Chemistry and Biochemistry of the Czechoslovak Academy of Sciences, Prague (for all)

Prague, Collection of Czechoslovak Chemical Communications, No 11, 1963, pp 3122-3128

"On Terpenes. CLVI. Absolute Configuration of the Sesquiterpenic Ketone Valeranone."

(4)

HOLUB, M.; HEROUT, V. CSSR

Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Science, Prague (both)

Prague, Collection of Czechoslovak Chemical Communications, No 12, 1963, pp 2980-2981

"On Terpenes. CXLVII. Isolation of Desacetoxymatricarin from Artemisia leukodes Schrenk."

VRKOC, J.; HEROUT, V.; SORM, F.

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1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

HEROUT, V.

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HOLUB, M.; POPA, D.P.; HEROUT, V.; SORM, F.

Terpenes. Pt. 159. Coll Cz Chem 29 no.4:938-942 Ap '64.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague (for all except Popa).
2. Institute of Chemistry, Moldavian Academy of Sciences, Kishinev, U.S.S.R. (for Popa).

HOCHMANNOVA, J.; HERZOT, V.

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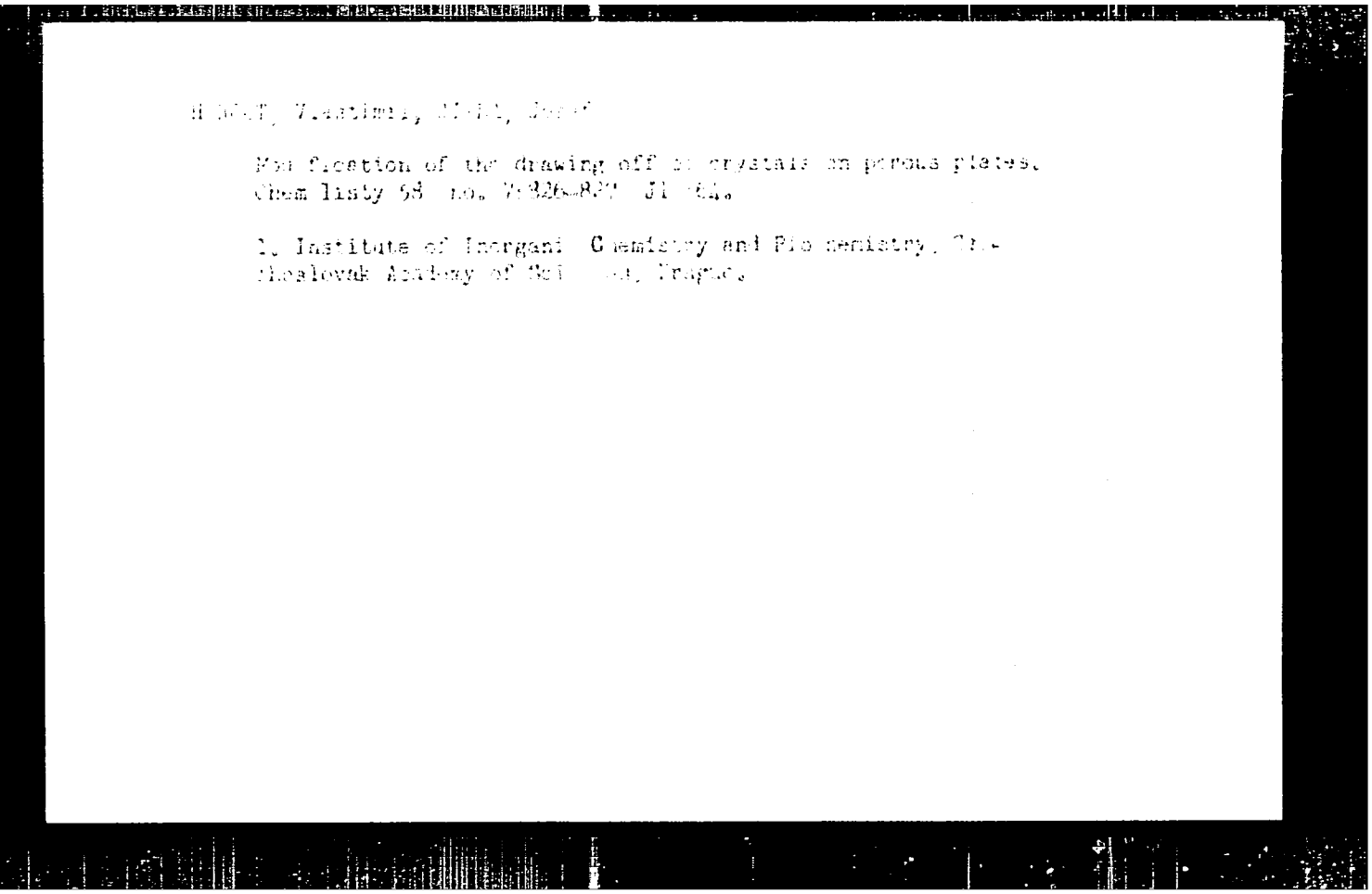
1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.



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Terpenes. Pt. 161. Coll Cz Chem 29 no.4:1048-1058 Ap '64.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague; Givaudan Corporation, Vernier-Geneva, Switzerland; University of Illinois, Urbana, Ill. 2. University of Arizona, Tucson, Arizona (for Bates).

[redacted]

[redacted]; SAMEK, O; [redacted]OUT, V; SORM, F.

[redacted]

Collection of Czechoslovak Chemical Communications, Vol 10, 1965, pp 3473-3477

"On Sesquiterpenes. CLXXV. Revision of Structure of Arbio ilaria, Chicin and Scabiolide."

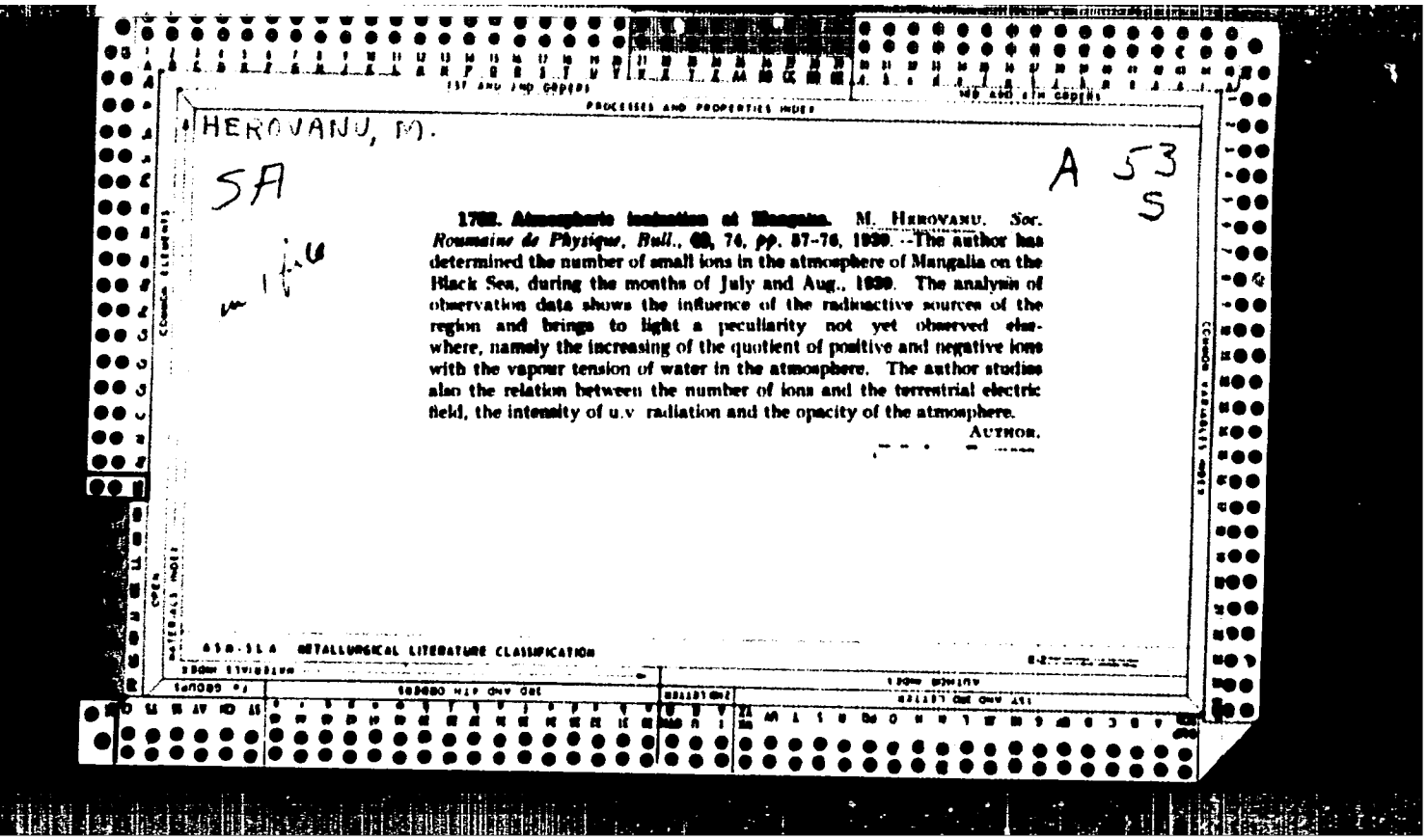
CZECHOSLOVAKIA

VLAHOV, R; HOLUB, M; HEROUT, V

Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague - (for all) Vlahov visiting scientist from Institute of Organic Chemistry, Bulgarian Academy of Sciences, Sofia, Bulgaria.

Prague, Collection of Czechoslovak Chemical Communications, No 2, February 1967, pp 822-829

"On terpenes. Part 185: The structure of two hydrocarbons of cadalene type isolated from [redacted] oil of Bulgarian origin."



HEROVANU, M.

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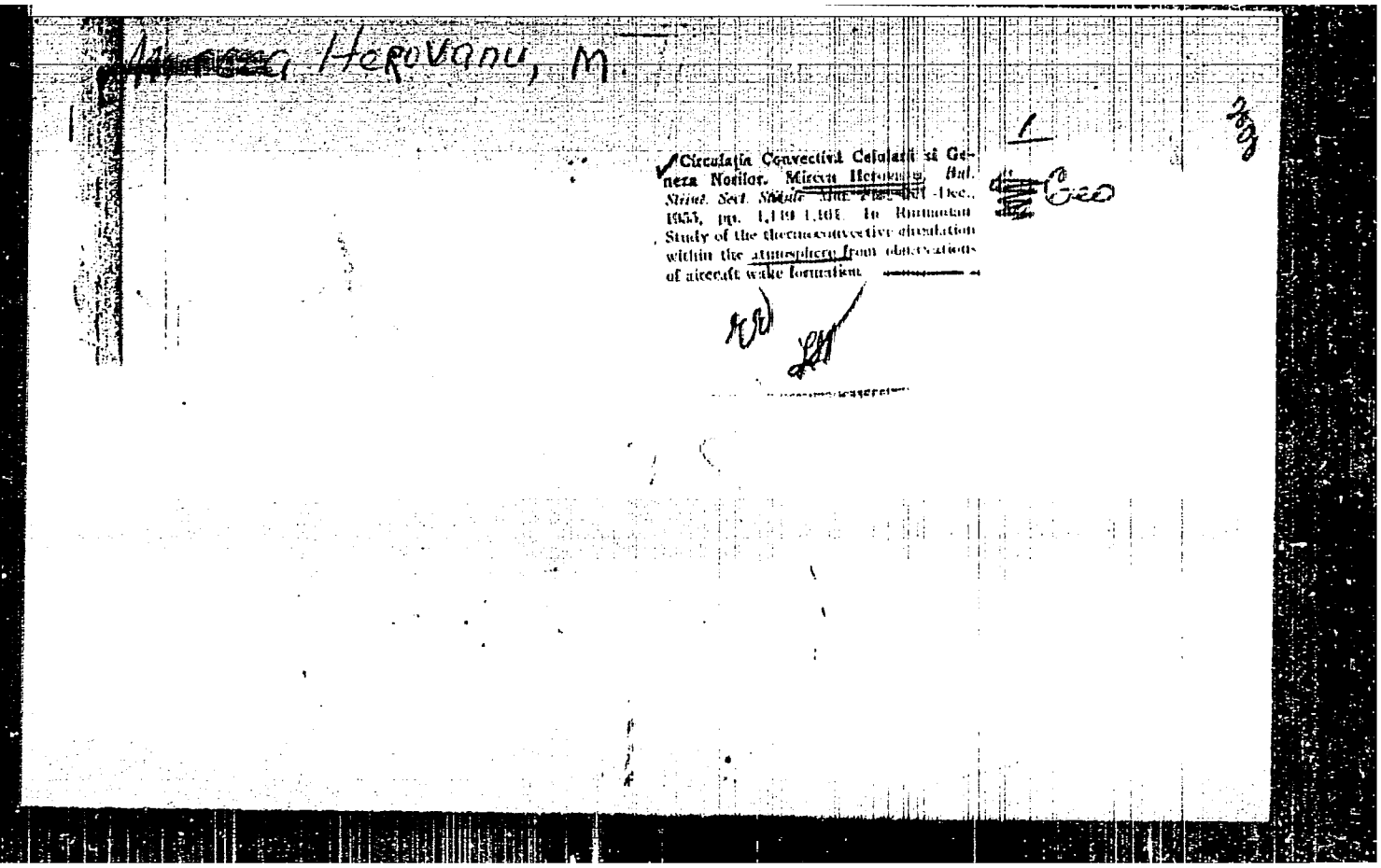
Author.



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RUM/2-11-9-12/42

AUTHOR: Heroveanu, Mircea, Doctor of Physical Sciences, University Lecturer

TITLE: Some Results of the International Geophysical Year. At the Threshold of the Atmosphere.

PERIODICAL: Ştiinţă şi Tehnică, Seria a II-a, Vol 11, Nr 9, pp 17-18 (RUM)

ABSTRACT: The author publishes data on the terrestrial atmosphere, obtained by Soviet scientists during the International Geophysical Year. The globe is enclosed in an atmospheric layer roughly 1,000 km thick, which becomes more and more rare with increasing height. However, there exists a second (outer) atmosphere which extends to a height of approximately 50,000 km. Soviet scientists have confirmed that the density of the air at a height of 380 km is 40 times greater than had been believed till now. The temperature decreases up to 10 km, remaining then more or less constant up to 25 km.

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Up to 50 km, the temperature first increases, then again decreases. This anomaly is due to the ozone which absorbs a part of the ultraviolet solar radiation, transforming it into heat. The reason for the increase of temperature from -100°C to +1,500°C, between 100 and 500 km is not yet clear. Formerly, the ionosphere was known only to an altitude of 320 km. Measurements performed in 1958 with rockets and Sputniks supplied some information on the ionization of the air beyond this limit. Ionization slowly decreases retaining half its value at 470 km. The quantity of free electrons increases with height, considerably exceeding the quantity resulting from ionization of the air. Thus, a large part of the free electrons in the outer atmosphere has to have another origin. They also possess considerable energy, greater than the energy of the air atoms, among which they move. The 3rd Sputnik and the Soviet cosmic rocket have proved that the globe is

Card 2/6 encircled by an aureole, consisting of electrified

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particles, which extend the terrestrial atmosphere to an altitude of 50,000 km. The formation of this aureole is due to the magnetic properties of the globe. The shape of the aureole is determined by the lines of force of the Earth's magnetic field. The aureole extends the atmosphere in the equatorial plane. There are two zones of higher concentration in the aureole encircling the earth. The first zone, located closer to the globe has some particles, probably protons (nuclei of H atom) which possess very high energy. The more remote zone has electrons of average energy. The discovery of the terrestrial aureole is of importance in explaining the outer atmosphere phenomena. Concerning the formation and the nature of its constituent particles, there are several theories. The following hypothesis was put forward at the last conference of the Committee of the International Geophysical Year in Moscow in February 1959: The atomic nuclei of the high atmosphere release neutrons under the effect

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of constant bombardment by cosmic radiation particles. These neutrons idle in space until they are transformed into a pair of electrified particles: 1 proton and 1 neutron. Since this transformation is performed within the earth's magnetic field, the particles remain inside the field to form the aureole. According to another theory, the particles originate from the sun. Electrified particles emitted by the sun are captured by the magnetic field of the earth, thus forming the aureole. According to this theory, the solar corona considerably exceeds the imaginary circle which till now was believed to be its limit, and encompasses almost all the planets. The solar corona is allegedly composed of electrons and protons and has, in the region of the earth's orbit, a temperature of at least 200,000°C. Thus, the terrestrial atmosphere receives heat from the solar atmosphere. This would also explain the fact that the temperature of the outer atmosphere decreases from the periphery to the center. However, orbiting in such a hot environment,

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the earth would have been gradually heated up, melted and vaporized. This did not happen because of the reason: The solar gas in which the earth rotates, is extremely rarefied, but the quantity of heat necessary to heat up a body depends on its density. Thus the rarefied solar gas, although very hot, contains only very little heat, only enough to heat up the air of the outer atmosphere, the density of which is also very low. The solar heat is not strong enough to heat up the inner atmosphere or even the Earth. The problem of heating up the outer atmosphere is complicated by the Earth's magnetic field which captures the electrified particles of the solar corona and forms the terrestrial aureole. On the other hand, the non-electrified solar particles are not captured by the magnetic field and can heat up the other regions of the Earth's atmosphere. The electrified particles can descend along the magnetic lines of force to an altitude of 60 - 1,000 km above the Earth, where they form the

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polar auroras. The present results of the International Geophysical Year are very simple, but very useful in indicating new lines of research. There are 4 figures.

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